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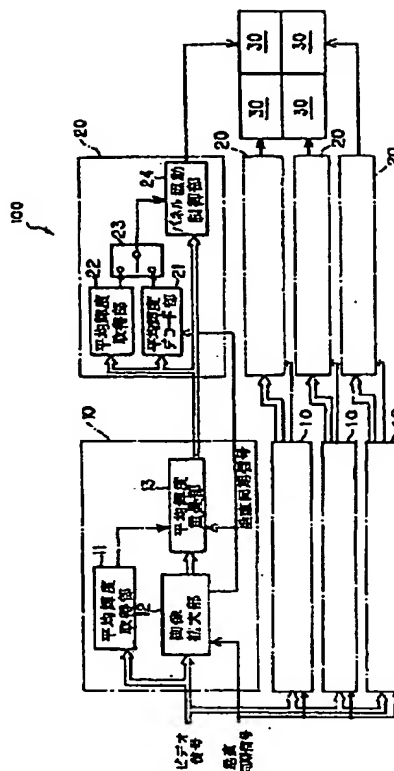
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TITLE : MULTI-DISPLAY VIDEO DISPLAY
SYSTEM



ABSTRACT : PROBLEM TO BE SOLVED: To provide a multi-display video display system capable of speedily controlling display brightness of each display.

SOLUTION: A multi-display video display system for displaying a single picture under magnification using a plurality of plasma display panel display devices comprises an average brightness obtaining part 11 for obtaining an average luminance level of an original picture from the video signals of the original picture, a picture magnifying part 12 for receiving video signals of the original picture and generating magnified display signals corresponding to a magnified display of the original picture, a plurality of plasma display panel display devices 30 for receiving the magnifying display signals and displaying the original picture under magnification, and a panel drive control part 24 for controlling display brightness in the plasma display panel display device 30 based on the average brightness level of the original picture obtained by the average luminance obtaining part 11.

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the multi-display graphic display system which can control especially the brightness of a display display appropriately and quickly about the multi-display graphic display system which carries out the enlarged display of the single image using two or more display displays.

[0002]

[Description of the Prior Art] A big screen is constituted using two or more display displays, and the system which carries out the enlarged display of the single image to the screen is known. On the other hand, there is a thing using the plasma display panel as a suitable display for such a system.

[0003] In order to manage the life and temperature of a panel in a plasma display panel, it is desirable to control the brightness of the display based on an average intensity level, and it is desirable to control the brightness of the display in each plasma display panel which constitutes a big screen also in the above-mentioned system.

[0004] In the above-mentioned system which combined two or more plasma display panels, there are some which were indicated by JP,8-205056,A, JP,9-46618,A, and JP,10-124003,A as a technique which controls the brightness of the display in each panel. He acquires the average intensity level of the image which should be displayed on each plasma display panel, and is trying to control the brightness of the display in each panel by the technique indicated by these official reports based on this average intensity level.

[0005]

[Problem(s) to be Solved by the Invention] However, since the brightness of the display in each panel is controlled by the technique indicated by the above-mentioned official report based on the average intensity level of the image which should be displayed on each panel, in order to control dispersion in the brightness of each panel, the exchange of the information between the control units for driving each panel is needed. For this reason, there is a problem that it becomes difficult to control the brightness of a display quickly according to an average intensity level.

[0006] This invention aims at offering the multi-display graphic display system which can control the brightness of the display in each display display quickly.

[0007]

[Means for Solving the Problem] The multi-display graphic display system of this invention In the multi-display graphic display system which carries out the enlarged display of the single image using two or more display displays A subject-copy image average intensity-level acquisition means to acquire the average intensity level of a subject-copy image from the video signal of a subject-copy image (11), The enlarged display signal generation section which generates the enlarged display signal corresponding to the enlarged display of a subject-copy image in response to the video signal of a subject-copy image (12), Two or more display displays which carry out the enlarged display of the subject-copy image in response to an enlarged display signal (30), It is characterized by having the

control means (24) which controls the brightness of the display in a display display (30) based on the average intensity level of the subject-copy image acquired by the subject-copy image average intensity-level acquisition means (11).

[0008] Since according to this multi-display graphic display system an average intensity level is acquired based on the video signal of the subject-copy image before expanding an image and the brightness of a display display is controlled based on this average intensity level Even if it does not exchange information during a display display, dispersion in the brightness of the display in each display display can be prevented, and the average intensity level moreover acquired can be made to reflect in brightness control of a display image quickly.

[0009] It may have a superposition means (13) to superimpose the average intensity level of the subject-copy image acquired by the subject-copy image average intensity-level acquisition means (11) on the enlarged display signal generated by the enlarged display signal generation section (12), and a control means (24) may control the brightness of the display in a display display (30) based on the average intensity level on which the enlarged display signal was overlapped.

[0010] In this case, since the brightness of the display in a display display is controlled based on the average intensity level on which the enlarged display signal was overlapped, an average intensity level can be sent using Rhine which transmits an enlarged display signal. For this reason, it is not necessary to use the special cable for transmitting an average intensity level etc.

[0011] An average intensity-level acquisition means (11) and the enlarged display signal generation section (12) may be used in common to two or more display displays (30). In this case, a compact system can be obtained.

[0012] A plasma display panel may be used as a display display (30). In this case, the life of a plasma display etc. is appropriately manageable by controlling the brightness of the display in a plasma display quickly.

[0013] In addition, although the reference mark of an accompanying drawing is written in addition in parenthesis writing in order to make an understanding of this invention easy, thereby, this invention is not limited to the gestalt of illustration.

[0014]

[Embodiment of the Invention] Hereafter, with reference to drawing 1 , 1 operation gestalt of the multi-display graphic display system by this invention is explained. Drawing 1 is the block diagram showing the multi-display graphic display system of this operation gestalt.

[0015] As shown in drawing 1 , the multi-display graphic display system 100 of this operation gestalt is equipped with four sets of four sets of four sets of the video-signal generation sections 10 which generate the video signal for an expansion image based on the video signal of a subject-copy image, and the module sections 20 which receive the corresponding output signal of the video-signal generation section 10, and the plasma display panel displays 30 controlled by each module section 20, respectively. Each video-signal generation section 10 and each module section 20, and the corresponding plasma display indicating equipment 30 may be contained in the case of one, it may dissociate mutually and the video-signal generation section 10 and a module 20, and the plasma display indicating equipment 30 may be formed.

[0016] The video-signal generation section 10 is equipped with the average luminance acquisition section 11 which acquires the average intensity level (APL) of the inputted video signal on real time, the image limb 12 which generates the video signal for an expansion image based on the inputted video signal, and the average luminance superposition section 13 which superimposes the average intensity level acquired in the average luminance acquisition section 11 by the video signal outputted from the image limb 12.

[0017] The module section 20 is equipped with the average-luminance decoding section 21 which extracts an average intensity level and is decoded, the average-luminance acquisition section 22 which acquires the average intensity level of the video signal outputted from the video-signal generation section 10, the switch section 23 which chooses one of the output signal of the average-luminance decoding section 21, and the output signals of the average-luminance acquisition section 22, and the

panel drive control section 24 which control the drive of the panel of the plasma display panel display 30 from the video signal outputted from the video-signal generation section 10.

[0018] In addition, the data in which the viewing area (either of four fields of the upper right in an expansion image, the lower right, the upper left, and the lower left) of the expansion image (expansion image displayed on the plasma display panel display 30 connected to each module 20) corresponding to each module section 20 is shown are given to the panel drive control section 24, and the video signal of the viewing area which corresponds from the panel drive control section 24 is outputted. By referring to this data, from the panel drive control section 24 of each module section 20, the corresponding signal of a viewing area is outputted and it is inputted into each plasma display panel display 30. The corresponding image of a viewing area will be displayed on each plasma display panel which adjoined mutually and has been arranged by this, and the expansion image to which the subject-copy image was expanded as a whole will be displayed on it.

[0019] Next, actuation of the multi-display graphic display system 100 of this operation gestalt is explained.

[0020] As shown in drawing 1, the video signal (RGB code) inputted into the video-signal generation section 10 is given to the average luminance acquisition section 11 and the image limb 12. Moreover, the Vertical Synchronizing signal extracted from the video signal is used in the average luminance acquisition section 11 and the image limb 12.

[0021] In the average luminance acquisition section 11, the average intensity level of the inputted video signal is acquired on real time. On the other hand, in the image limb 12, the video signal of the expansion image to which the subject-copy image was expanded is generated based on the video signal of a subject-copy image.

[0022] In the average luminance superposition section 13, the brightness data outputted from the average luminance acquisition section 11 are superimposed to the video signal of the expansion image outputted from the image limb 12 based on the Vertical Synchronizing signal outputted from the image limb 12. The Vertical Synchronizing signal outputted from the superposition signal and the image limb 12 which were mutually superimposed on an expansion image and brightness data is inputted into each module section 20, respectively.

[0023] In each module section 20, the superposition signal outputted from the average luminance superposition section 13 is given to the average luminance decoding section 21, the average luminance acquisition section 22, and the panel drive control section 24, respectively.

[0024] In the average luminance decoding section 21, it decodes, while extracting the brightness data contained in a superposition signal, and it outputs as brightness data. On the other hand, the average luminance acquisition section 22 acquires the average intensity level of the video signal of the expansion image contained in a superposition signal, and outputs it as brightness data. The switch section 23 chooses the brightness data automatically outputted by hand control from the average luminance decoding section 21 or the average luminance acquisition section 22. When performing multi-display graphic display (i.e., when operating a system 100 as a multi-display graphic display system by this invention), the brightness data outputted by the switch section 23 from the average luminance decoding section 21 are chosen. Hereafter, the case where the brightness data from the average luminance decoding section 21 are chosen by the switch section 23 is explained. In addition, by changing the switch section 23 to the average luminance acquisition section 22 side, when taking the usual display gestalt which displays an image on one set of an indicating equipment, it becomes possible to use the module section 20.

[0025] According to the brightness data into which the brightness of the display image in the plasma display panel indicating equipment 30 is inputted, it controls by the panel control section 24. The brightness of the display screen in the plasma display display 30 is controlled by the panel control section 24 by controlling the number of sustain pulses (luminescence maintenance pulse). When the average intensity level which brightness data show is high, the brightness of the display screen can be controlled by reducing the number of sustain pulses. For example, the total sustain pulse number used for displaying one screen according to the average intensity level of the video signal which constitutes

one screen is controlled so that power consumption is settled below in a predetermined value.

[0026] As mentioned above, based on the video signal before expanding an image, he acquires an average intensity level, and is trying to control the level of the video signal of an expansion image by the multi-display graphic display system 100 of this operation gestalt in each module 20 using this data. For this reason, even if it does not exchange information between modules 20, dispersion in the brightness of the display in each display can be prevented, and the average intensity level moreover acquired can be made to reflect in brightness control of a display image quickly. For this reason, the display quality of an expansion image can be raised.

[0027] Moreover, in the video-signal generation section 10, he superimposes and outputs an average intensity level to the video signal of an expansion image, and is trying to extract an average intensity level in the module section 20 in the multi-display graphic display system 100 of this operation gestalt. For this reason, it is not necessary to use the special cable for transmitting brightness data etc.

[0028]

[Effect of the Invention] Since according to the multi-display graphic display system of this invention an average intensity level is acquired based on the video signal of the subject-copy image before expanding an image and the brightness of a display display is controlled based on this average intensity level Even if it does not exchange information during a display display, dispersion in the brightness of the display in each display display can be prevented, and the average intensity level moreover acquired can be made to reflect in brightness control of a display image quickly.

[0029] Although the above-mentioned operation gestalt explained the system which used the plasma display panel, this invention is applicable also to the system using other displays. Moreover, the number of displays can be chosen as arbitration.

[Translation done.]